

Beam-hopping satellite moves one step closer to launch

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Credit: SatixFy

An advanced broadband satellite that can offer high-speed internet connectivity anywhere on Earth is ready to enter its final assembly ahead of launch.

The beam-hopping satellite—nicknamed JoeySat after a baby kangaroo—will be used to connect thousands of people on ships at sea, on planes in flight and while traveling over land, demonstrating next-generation 5G connectivity from low Earth orbit.

Its fully digital beam-hopping and beam-steering [payload](#) can switch between different places on Earth up to 1,000 times per second and adjust the strength of the communications signals to meet demand.

Developed under the Sunrise Partnership Project between ESA and telecommunications operator OneWeb, JoeySat will demonstrate key technologies for OneWeb's second-generation constellation, as part of the ESA Sunrise project with support from the U.K. Space Agency.

Its advanced digital regenerative payload was built, tested and fully qualified by SatixFy in the U.K. and the payload environmental tests were completed in the U.K. The flexible payload is fully software defined and will be reconfigurable in orbit.

It has now shipped to the OneWeb factory assembly line in Florida where it will undergo further assembly and tests. Once these are complete, Joeysat will be launched into low Earth orbit, where it will loop round the planet at more than 26 000 km/h.

JoeySat was built in less than a year after the contract was signed between ESA and OneWeb, using off-the-shelf commercial parts and a lean management style. It is due to be launched within the next few months.

Elodie Viau, director of telecommunications and integrated applications at ESA, said, "Once again our Partnership Projects demonstrate how ESA cooperates efficiently with industry to anticipate crucial developments in a timely manner and create real solutions. The Joeysat satellite demonstrator for OneWeb's next-generation constellation is a brilliant example of this cooperation."

Provided by European Space Agency

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